

It's All About the Infrastructure

Clean Cities Conference

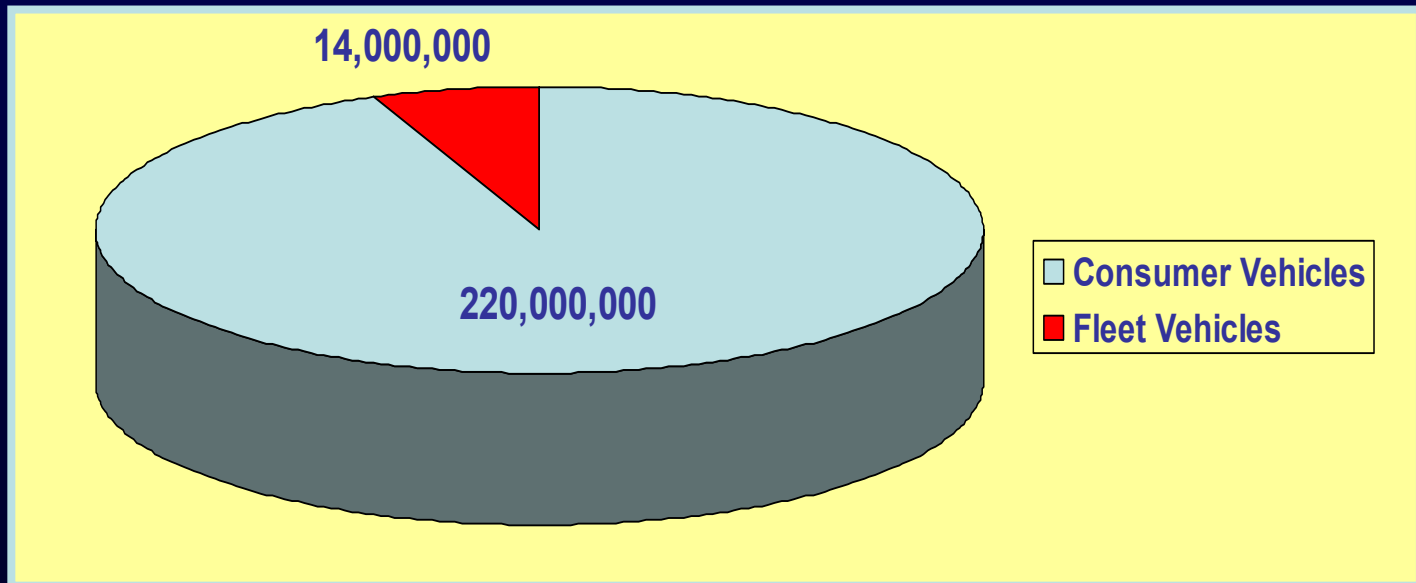
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US Vehicle Market

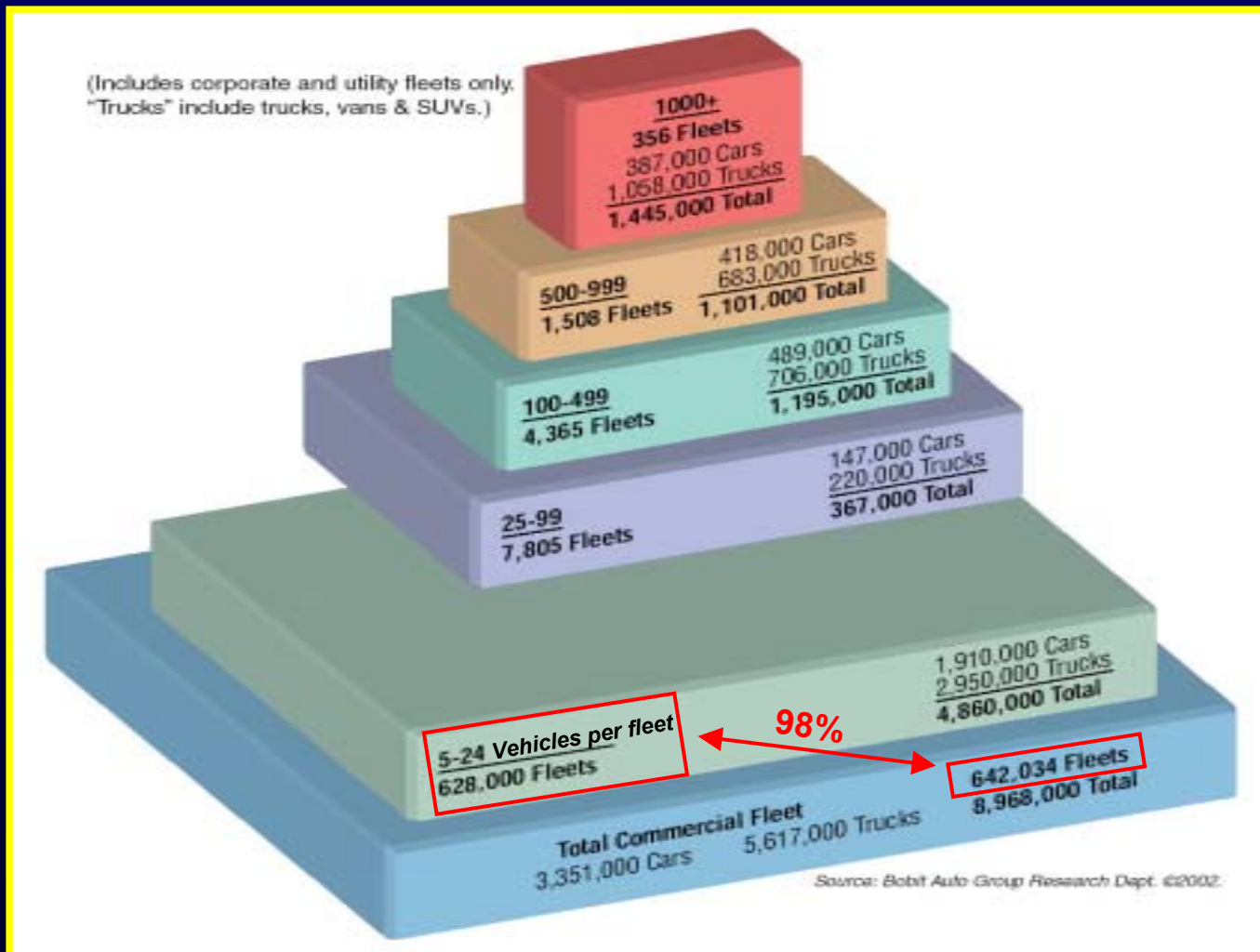
- The fleet market is composed of 14 million vehicles
- There are 16 times more consumer vehicles than fleet vehicle
- The initial market for AFVs is the fleet market, consumer vehicles will follow



U.S. Commercial Fleet Market

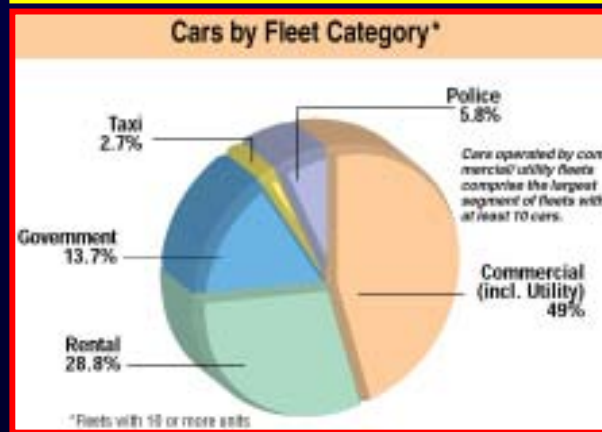
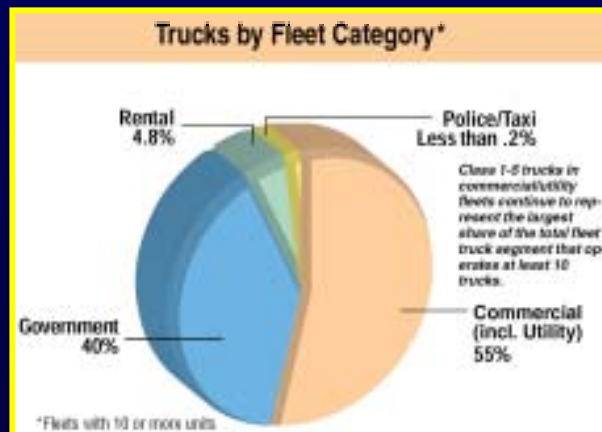
(Government not Included)

- 98% of all fleets are small fleets (5 to 24 vehicles)



Vehicles By Fleet Category (Government Included)

- Over 34% of all fleet vehicles are government vehicles
- 52% of all other vehicles are in commercial fleets including utilities



Class 1-5 Trucks in Service (as of 2/1/02) (Based on 10+ Units in Operation)			
Type of Fleet	Leased or Managed	Company-Owned	Total
Commercial (including Utility)	1,354,000	1,486,000	2,820,000
Government			
Federal		-	460,000
State		-	332,000
County & Local		-	1,260,000
Total Govt. Subtotal	347,000	1,705,000	2,052,000
Rental (doesn't include vans and SUVs)	-	246,000	246,000
Other (police, taxi, etc.)	1,000	8,000	9,000
Fleet Total (10 or more)	1,702,000	3,425,000	5,127,000
All 'Fleets' with 4-9 trucks	900,000	975,000	1,875,000
INDUSTRY TOTAL	2,602,000	4,400,000	7,002,000

Cars in Service (as of 2/1/02) (Based on 10+ Units in Operation)			
Type of Fleet	Leased or Managed	Company-Owned	Total
Commercial (including Utility)	1,467,000	1,153,000	2,620,000
Government			
Federal	-	-	114,000
State	-	-	118,000
County & Local	-	-	502,000
Total Govt. Subtotal	111,000	623,000	734,000
Police	8,000	304,000	312,000
Taxi (includes vans)	4,000	138,000	142,000
Rental (includes vans and SUVs)	12,000	1,530,000	1,542,000
Fleet Total (10 or more)	1,692,000	3,746,000	5,350,000
All 'Fleets' with 4-9 cars	477,000	813,000	1,290,000
INDUSTRY TOTAL	2,079,000	4,561,000	6,640,000

The number of cars in operation at commercial/utility fleets with at least 10 cars represents 26.5 percent of the total fleet car market. Fleets that operate 4-9 cars increased 6.9 percent from the previous year.

Fleet Vehicle Fuel Consumption

- Most fleet vehicles travel 24,000 miles or less per year (less than 100 miles per day)
- At an average fuel economy of 20 mpg, this is less than 5 gallons of fuel per day

Target Market Conclusion

- Although the consumer market is substantially larger than the fleet market, initially the fleet market is best suited to AFVs
- 98% of all fleets are small fleets (24 to 5 vehicles)
- 34% of all fleets are operated by government
- The average fleet vehicle fuel consumption is 5 gallons or less, which fits well with AFVs

NGV Fleet Statistics

- Total of 126,000 NGVs in the U.S. (2002 DOE)
 - 100,000 light duty
 - 26,000 heavy duty
 - 50% of vehicles are in government fleets
 - Other 50% are in commercial and utility fleets
- Average annual fuel consumption of 900 GGEs per vehicle (3.5 GGEs per day)
- Most vehicles travel less than 70 miles per day

Selecting Infrastructure Can be Confusing

- Most fleet customers are not sure what they really need when it comes to CNG refueling
- The industry and Clean Cities need to help them with the selection process



Refueling Infrastructure

- Fueling station type depends on the specific needs of the fleet customer
 - Station type could be any of the following:
 - Local public refueling
 - High/medium capacity fast-fill
 - Light capacity mini fast-fill
 - On-site refueling
 - High/medium capacity fast-fill
 - Light capacity mini fast-fill
 - Light capacity time-fill or combo-fill

Large Public Station



High Capacity Fast-Fill, \$300K +

Large On-Site Station



High Capacity Fast-Fill, \$200K +

Public or Private Mini Fast-Fill



Mini Fast-Fill, \$80K to \$200K

On-Site Combo-Fill



Time/Fast-Fill, \$60K to \$200K

On-Site Time-Fill



Time-Fill, \$10K to \$200K

Customer's Needs and the Fueling System

- Matching the customer's needs with a refueling system
 - Convenient
 - On-site refueling can address the need for convenient refueling
 - Public refueling can also be convenient provided the station is close to the customer's location
 - Affordable fuel
 - By sizing the on-site fueling system to the exact customer's needs, the fuel cost is typically affordable and competitively priced with other fuels
 - Public refueling can also be affordable if the station is operating at optimum capacity
 - Simple
 - All of today's CNG refueling systems are simple to operate

Present Infrastructure Statistics

- Total of 1,738 CNG stations in the US
 - 62% are small stations
 - 38% are larger stations
- Approximately 114 million GGEs dispensed annually (2002 DOE)

Station size in SCFM		Total Stations
50 or less (Small Stations)	FuelMaker	800
51 to 100	Non-FuelMaker	280
101 to 200		205
201 to 500		175
501 or more		105
Not Specified		62
		111
Total		1738

Criteria for Station Size

- When to consider small stations:
 - Small fleets with moderate fuel consumption
 - No convenient public refueling available in the immediate area
 - Not enough local small fleets to support larger station
- When to consider larger stations:
 - Large fleets
 - High volume fuel requirements
 - Enough local small fleets to support a large station
- In most cases the above stations could incorporate public access

Market and Infrastructure Summary

- The largest fleet target market segment is small fleets
- The fleet customer wants simple, convenient and affordable fueling
- CNG stations are now commercially available to fuel any size vehicle and any size fleet anywhere there is gas available
 - 62% of the present CNG infrastructure is made-up of on-site small stations catering to small fleets that can't support large stations
 - 38% of stations are larger on-site or public access, catering to larger fleets and high consumption vehicles